Rahul Duggal

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EDUCATION

Georgia Institute of Technology, College of Computing   **2018 – Present**
- Ph.D. in Computer Science

University of Delhi, Netaji Subhas Institute of Technology   **2011 – 2015**
- Bachelor of Engineering (B.E.) in Computer Engineering

PROFESSIONAL EXPERIENCE

Graduate Research Assistant, Sunlab [Lab Page]   **Aug 2018 – Present**
- Leveraging deep learning techniques to solve problems in healthcare.

Software Developer, Epic Systems Corp, Madison, WI, USA   **Oct 2017 – Jun 2018**
- Worked with the OpTime team. Developed software for scheduling and documenting surgery time procedures.

Research Assistant, SBILab, IIIT-Delhi, India [Lab Page]   **Jan 2016 – Sep 2017**
- Worked in joint collaboration with Laboratory Oncology at the All India Institute of Medical Sciences (AIIMS) Delhi, on a project titled - **"Detecting Leukemia in Microscopic Medical Images"**.
- Successfully leveraged **Deep Learning** for several modules of this project, leading to publications at **top conferences.**
- These modules form the core of **LeukoAnalyzer** - a prototype tool (currently undergoing testing at AIIMS), capable of diagnosing Leukemia with an accuracy of over 93%.

Full Stack Developer, OnlineMocks, New Delhi, India [Demo]   **Jun 2015 – Dec 2015**
- OnlineMocks is an online preparation partner for major competitive examinations held in India.
- I was **among the founding team**, that built the web platform from scratch.
- The website got **funded by Alchemist** and is currently aiding over 1k+ students.

Software Development Intern, Samsung Research, Bangalore, India   **Jun 2014 – Jul 2014**
- Developed a prototype power saving application for Samsung's new flagship OS - Tizen.

PUBLICATIONS

[W1] Rahul Duggal, Anubha Gupta, "P-TELU: Parametric Tan Hyperbolic Linear Unit Activation for Deep Neural Networks", **International Conference on Computer Vision (ICCV) : Workshop on Compact and Efficient Feature Representation and Learning, Italy,** Oct 2017. [Paper]

[C2] Rahul Duggal, Anubha Gupta, Ritu Gupta, Pramit Mallick, "SD-Layer: Stain Deconvolutional layer for CNNs in Medical Microscopic Imaging", 20th **International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), Canada,** Sep 2017. [Paper][Code]

[C1] Rahul Duggal, Anubha Gupta, Ritu Gupta, Manya Wadhwa, Chirag Ahuja, "Overlapping Cell Nuclei Segmentation in Microscopic Images Using Deep Belief Networks", 10th **Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), India,** Dec 2016. [Paper][Code]

AWARDS

- Selected to attend the **Summer School on Deep Learning** at IIIT Hyderabad. **Secured 1st position (overall)** among 150 attendees wherein all participants were ranked in 5 daily challenges. Reward entails a potential travel grant to CVPR/ECCV 2018, apart from a cash prize.   **Jul 2016, 2017**
- Awarded the **Indian Association for Research in Computer Science** (ACM-IARCS) travel award to present my paper at MICCAI 2017, Quebec City, Canada.   **Jun 2017**
- Top 0.2 percentile out of 1.2 million candidates in the **All India Engineering Entrance Exam**.
- Top 0.9 percentile out of 0.5 million candidates in the **IIT Joint Entrance Exam**.
- Won a team Gold and an individual Bronze medal at the 4th International Young Mathematician's Convention which saw participation of 77 teams from 11 countries.   **2008**

SELECTED RESEARCH PROJECTS

Image Classification with AlexNet using Keras and Theano [code]
- Extended the open source library: convnets-keras, to three commonly occuring use cases - Training from scratch, Fine-Tuning a pre-trained model, and using AlexNet as a feature extractor.
- The github repository when released, was **trending on github**.

Emoticator : Predicting emotions evoked by english songs (Bachelors Thesis) [Paper] [Data/Web]
- Supervisor: Dr. Shampa Chakraverty (HOD, CSE Dept, NSIT Delhi)
  - The dataset was compiled using a selfmade website. We got 1.5k+ responses from 70+ users.
  - The combined lyrics plus audio featureset, extracted from each song, led to an improvement of the f-score acheived using audio only features by 5.8% and lyrical only features by 9.6%.
  - This work was **presented at the 22nd International Symposium, Frontiers of Research on Speech and Music**.

SKILLS

Platforms & Libraries : meteorJS, node, MATLAB, CUDA (basic), Caffe (basic), Theano, Keras, Pytorch
Competitive Programming
- Codeforces : Peak Rating 1682, **title - Expert**.
- Codechef : 131 problems solved, **peak global rank 307**.
- Ranked 186 and 168 worldwide, in google APAC rounds A and B. Invited to interview onsite at Google.   **2014**